Complete Summary

GUIDELINE TITLE

Carpal tunnel syndrome.

BIBLIOGRAPHIC SOURCE(S)

Work Loss Data Institute. Carpal tunnel syndrome. Corpus Christi (TX): Work Loss Data Institute; 2003. 99 p. [134 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Work-related carpal tunnel syndrome

GUIDELINE CATEGORY

Diagnosis
Evaluation
Treatment

CLINICAL SPECIALTY

Family Practice
Internal Medicine
Neurology
Orthopedic Surgery

INTENDED USERS

Advanced Practice Nurses
Health Care Providers
Health Plans

Nurses
Physicians

GUIDELINE OBJECTIVE(S)

To offer evidence-based step-by-step decision protocols for the assessment and treatment of workers´ compensation conditions

TARGET POPULATION

Workers with occupational carpal tunnel syndrome

INTERVENTIONS AND PRACTICES CONSIDERED

1. Aerobic exercise
2. Carpal tunnel release surgery
3. Use of closed fist sign in diagnostic assessment
4. Cold packs
5. Comorbidities assessment
6. Differential diagnosis
7. Durkan's compression test
8. Electrodiagnostic studies
9. Endoscopic surgery
10. Hand and wrist exercises
11. Use of Flick sign (shaking hand) in diagnostic assessment
12. Hypalgesia in the median nerve territory in diagnostic assessment
13. Corticosteroid injection
14. Katz hand diagram scores
15. Assessment of night pain symptoms
16. Assessment of nocturnal paresthesias
17. Nonprescription medications, such as acetaminophen or nonsteroidal anti-inflammatory drugs (NSAIDs) (e.g., aspirin, ibuprofen)
18. Phalen's test
19. Physical therapy
20. Semmes-Weinstein monofilament test
21. Splinting
22. Use of square wrist sign in diagnostic assessment
23. Static 2-point discrimination > 6 millimeters
24. Use of Tinel's sign in diagnostic assessment
25. Tourniquet test
26. Ultrasound
27. Vitamin B supplementation, if patient is deficient
28. Assessment of weak thumb abduction strength
29. Work modifications
30. Assessment of wrist pain

The following interventions were considered, but are either not currently recommended or not specifically included as major recommendations:

1. Acupuncture
2. Avoidance of computer mouse use
3. Arnica

4. Biofeedback
5. Chiropractic manipulation
6. Gel-padded glove
7. Hypnosis
8. Iontophoresis
9. Magnets
10. Phonophoresis
11. Tendon gliding exercises
12. Transcutaneous electrical neurostimulation (TENS)
13. Therapeutic touch
14. Yoga

MAJOR OUTCOMES CONSIDERED

- Sensitivity and specificity of diagnostic tests
- Effectiveness of treatments for relief of pain and symptoms

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Ranking by quality within type of evidence:

a. High Quality
b. Medium Quality
c. Low Quality

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

The guideline developers reviewed published cost analyses.

METHOD OF GUIDELINE VALIDATION

Not stated

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not applicable

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Initial Diagnosis

- First visit: with Primary Care Physician MD/DO (100%)
- Determine severity:
    - Mild/moderate (Go to Initial Conservative Treatment):
        - Symptoms: pain/numbness in hand/wrist/forearm, below the elbow, with tingling that is primarily in thumb, index, and long finger (Katz hand diagram and hypethesia index finger compared to little finger), with nocturnal awakening, impaired dexterity, and having to shake the hand for relief (Flick sign)
        - Tests: Phalen's/Tinel's signs positive (not always useful), decreased sensitivity by 2-point discrimination test (moving versus static) for hypalgesia. Also consider Semmes Weinstein monofilament test, Durkan´s pressure provocation test, closed fist sign, square fist sign.
        - Muscle atrophy: Mild weakness of thenar muscles (thumb abduction)
        - Recommended: findings that best distinguish between patients with electrodiagnostic evidence of carpal tunnel syndrome (CTS) and patients without it are hypalgesia in the median nerve territory (likelihood ratio [LR] 3.1), classic or probable

Katz hand diagram results (likelihood ratio 2.4), and weak thumb abduction strength (likelihood ratio 1.8).
        - History/exam, comorbidities: diabetes, hypothyroidism, rheumatoid arthritis, obesity, hypertension, inactivity, age
        - Concurrent pregnancy: CTS likely to resolve on its own within 6 weeks after delivery
    - Severe (Go Directly to Electrodiagnostic Testing)
        - Muscle atrophy: severe weakness of thenar muscles
        - Test: 2-point discrimination over 6 millimeters
- Rule out diagnoses (See other treatment parameters for each of these):
    - Cervical radiculopathy (refer to the original guideline document for relevant ICD-9 codes for CTS and other diagnoses)
    - Tendonitis
    - Osteoarthritis
    - Thoracic outlet syndrome, brachial plexus disorders

Mild/Moderate -- Initial Conservative Treatment (70% of cases)

- Also first visit (day 1):
    - Prescribe alteration of activity (home and work), frequent breaks, stretching, night and possibly day splint, appropriate analgesia (i.e., acetaminophen) and/or anti-inflammatory (i.e., ibuprofen) [Benchmark cost: $14], back to work--modified duty if condition caused by job, possible ergonomic evaluation of job

Official Disability Guidelines (ODG) Return-To-Work Pathways

Conservative treatment, modified work (no repetitive use of hand/wrist): 0 days

Conservative treatment, regular work (if not cause of or aggravating to disability/use of splint): 0--5 days

- Second visit (day 14–-about 2 weeks after first visit)
    - Document progress
    - If not significantly improved then may (approximately 50% of cases) prescribe physical therapy for home exercise training [Benchmark cost: $250]: Refer to Physical Therapist (50%) or Occupational Therapist (50%) for 3 visits per week for 2 weeks
- Third visit (day 28--about 1 month after first visit)
    - Document progress
    - Corticosteroid injection trial (high likelihood of relief, but may have recurrence of symptoms within several months--initial relief of symptoms good indicator for success of surgery, even possible to skip Electrodiagnostic Testing) [Benchmark cost: $276]. Should be performed by musculoskelatally trained physician
    - If prescribe therapy, then continue therapist, change from passive to active modality, 2 visits per week, teach home exercises
    - Vitamin B6 therapy has been successful if deficient, but is controversial
    - Ultrasound therapy has been successful, but there are few studies

ODG Return-To-Work Pathways

Conservative treatment, regular work (if work related): 28 days

Conservative treatment, regular work (with severe nerve impairment): indefinite

- Fourth visit (day 42--about 6 weeks after first visit)
    - Refer for Electrodiagnostic Testing

Electrodiagnostic Testing (50% of cases)
[Benchmark cost: $370]

- All severe cases, plus mild/moderate cases after Initial Conservative Treatment above
- Refer to Neurologist (70%) or Physical Medicine (30%) specialists certified in electrodiagnostic medicine, for electromyography (EMG)/Nerve Conduction Studies, the "gold standard" tests for the evaluation of CTS.
- Positive test: refer for Carpal Tunnel Release

Carpal Tunnel Release (35% of cases)
[Benchmark cost: $2,621]

- Performed by Hand Surgeon: Orthopaedic Surgeon (75%), Neurosurgeon (10%), Plastic Surgeon (10%), or General Surgeon (5%)
- On an outpatient basis
- May be open or endoscopic, depending on experience of surgeon
- If bilateral (25% of cases), schedule separate surgeries
- Expected outcome:
    - Mild/moderate cases: over 90% success with complete recovery after failure of Initial Conservative Treatment
    - Severe cases: Complete recovery is unlikely, but 90% will benefit from at least partial recovery.
- Post-surgical treatment:
    - Splint – day and night: not recommended
    - Stitches out in 5 to 10 days
    - Physical/Occupational Therapy: A short course may be needed; if so, then post-surgical treatment (endoscopic): 14 visits over 8 weeks; post-surgical treatment (open): 20 visits over 10 weeks

ODG Return-To-Work Pathways

Endoscopic surgery, modified work: 3--5 days

Endoscopic surgery, regular work, non-dominant arm: 28 days

Endoscopic surgery, regular/repetitive/heavy manual work, dominant arm: 42 days to indefinite

Open surgery, modified work: 14 days

Open surgery, regular work, non-dominant arm: 42 days

Open surgery, regular/repetitive/heavy manual work, dominant arm: 56 days to indefinite

- Failed Carpal Tunnel Release (4% of cases):
  - Repeat Electrodiagnostic Testing
  - Repeat Carpal Tunnel Release (by fellowship-trained Hand Surgeon)

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

During the comprehensive medical literature review, preference was given to high quality systematic reviews, meta-analyses, and clinical trials over the past ten years, plus existing nationally recognized treatment guidelines from the leading specialty societies.

The type of evidence associated with each recommended or considered intervention or procedure is ranked in the guideline's annotated reference summaries.

Ranking by Type of Evidence:

1. Systematic Review/Meta-Analysis
2. Controlled Trial–Randomized (RCT) or Controlled
3. Cohort Study--Prospective or Retrospective
4. Case Control Series
5. Unstructured Review
6. Nationally Recognized Treatment Guideline (from www.guideline.gov)
7. State Treatment Guideline
8. Foreign Treatment Guideline
9. Textbook
10. Conference Proceedings/Presentation Slides

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

These guidelines unite evidence-based protocols for medical treatment with normative expectations for disability duration. They also bridge the interests of the many professional groups involved in diagnosing and treating carpal tunnel syndrome.

POTENTIAL HARMS

Not stated

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2003

GUIDELINE DEVELOPER(S)

Work Loss Data Institute - Public For Profit Organization

SOURCE(S) OF FUNDING

Not stated

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available to subscribers from the Work Loss Data Institute Web site.

Print copies: Available from the Work Loss Data Institute, 169 Saxony Road, Suite 210, Encinitas, CA 92024; Phone: 800-488-5548, 760-753-9992, Fax: 760-753-9995; www.worklossdata.com.

AVAILABILITY OF COMPANION DOCUMENTS

Background information on the development of the Official Disability Guidelines of the Work Loss Data Institute is available from the Work Loss Data Institute Web site.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on February 2, 2004. The information was verified by the guideline developer on February 13, 2004.

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